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Dynamics and Interdependence Between Rural Real Estate and Financial Markets in the U.S.A.

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Dynamics and Interdependence Between Rural Real Estate and Financial Markets in the U.S.A.*

Philip M. Raup**

I am honored to be invited to participate in your conference on territorial governance. The University of Padova has a long-standing and illustrious reputation in real estate studies, and especially in appraisal and valuation of rural land during periods of momentous changes. In the past, these changes have often been associated with war, and wrenching political and social upheavals.

It is the thesis of this paper that we are all involved in contemporary and dramatic change in the role played by land in our economies. It is no less profound than those in the past, and it is driven, not by war or overt revolution, but by global market forces that we are struggling to understand. These changes are altering the asset base of farming and of rural communities. Among the major consequences are shifts in the roles of debt and equity in farm finance, and of land as a revenue base for local governments. I will use illustrative evidence of change, drawn from my own state of Minnesota, and supplemented by data for the United States as a whole when they are relevant.

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It is worth noting that the agricultural lands of the Veneto lie at almost exactly the same latitudes (± 45º N.) as do the agricultural lands of Minnesota. We do not have your mountains, nor do we have the moderated climate that sustains your fruit and vineyard cultures, but in field grain crops and livestock economies the similarities between the Veneto and Minnesota are close. We also share many of the same problems in the use and governance of these lands.

I do not wish to imply that the trends we can note in the management and financing of agriculture in Minnesota and the United States are necessarily relevant to the Veneto and Italy. I leave it to you to make that judgement. But I do express a faith in the values of a conference, like this XXIX meeting of Ce.S.E.T., in enabling us to share experiences and interpretations of the larger economic forces that affect us all. The time-span I will use in elaborating on these trends is the period since the end of the Second World War in 1945.

There can be differences of opinion in ranking the major changes in the use of American agricultural land in the last half-century. Near the top of any ranking would be the growing specialization in agricultural production, in both field crops and in the livestock sectors.

Begin with field crops. In 1950, corn (maize), wheat, and soybeans were grown on 40 percent of the total cultivated land in Minnesota. Today, these crops account for three-fourths of all acres of cropland. Oats in 1950 occupied almost five times the acreage planted to soybeans, and the acreage in flax exceeded the acreage in soybeans. Today, oats and flax have become minor crops on Minnesota farms. The state's agricultural economy is heavily dependent on just three crops, each of which is highly sensitive to export markets.

It has been estimated (reliable data are almost impossible to assemble) that in the 1950's some

80 percent of the maize and a higher percentage of the oats (then the two major crops in terms of land use) were fed to livestock on farms in the areas in which they were produced. Apart from wheat, there was a minor exposure to world markets. Today, and given its geographic location as the major grain producing state most distant from ocean ports, Minnesota can be ranked as one of the agricultural states in the U.S. most exposed to variability in world demand for grains. Agricultural land use decisions in Minnesota have been internationalized.

Concentration and specialization have been even more dramatic in livestock production. At the end of World War II almost all farm operations in Minnesota kept some livestock, with dairy cows, hogs, and poultry especially widely distributed. The U.S. Census of Agriculture in 1950 enumerated 179,101 farms in Minnesota, and 5,382,162 in the United States, defining a farm as any operation with 3 acres or more of agriculturally used land. By 1997 (the latest year for which comparable data are available) the number of farms had declined to 73,367 in Minnesota and to 1,911,859 in the United States, defining a farm as any operation with annual agricultural product sales of $1,000 or more.

The Minnesota Agricultural Statistics estimated that in 1998, only 31,000 or 39% of the farming operations reported any cattle; and among these only 9,700 or 12.1 percent reported any milk cows, compared to 80 percent in 1950. Hogs in 1998 were reported on 8,500 or 11 percent of operating units compared to an estimated 62 percent of farms in 1950. The average number of hogs per farm reporting in 1950 was 20.6. In 1998, farm operations having over 2,000 head of hogs accounted for 56 percent of the total hog inventory, (1999 Minnesota Agricultural Statistics, Minnesota Agricultural Statistics Service, St. Paul, and preceding annual publications in this series).

In 1950, income from sale of chickens was reported by 136 thousand Minnesota farms, or

76.1 percent of all farms. In 1997, a total of 13,047,875 chickens were inventoried on 1,964 Minnesota farms (2.4 percent of all farms), with an average of 6,644 birds per farm reporting.

What have been the driving forces behind these changes? There are no simple answers, but one cause has clearly been the doubling in world trade in food and feed grains in the past half-century. Coupled with domestic U.S. farm price support programs (which favored grain crops), mechanization which released farm labor, and many other interacting causes, the result has been a shift within farms in the attractiveness of grain (including soybean) production vs. livestock. This has shifted the market orientation of US farms from a primary focus on domestic markets to a focus that today includes a large element of risk exposure to international markets.

In Minnesota, for example, the sale of livestock and products accounted for 71 percent of gross farm receipts in 1950 and barely 50 percent in 1998. The element of volatility introduced by this expanded international market exposure has dominated the evolution of the U.S. agricultural structure for the past three decades.

Recall that the Soviet Union decided in 1971/72 to import grain, primarily to provide meat, after the government of neighboring Poland had fallen in 1970 because, it was said, there was no meat in the shops. As a result, the grain-related policies for agriculture in the European Union, in Canada, and in the United States were unpredictably underwritten for over two decades by Soviet Union grain import policy. This added a net increase that varied between 10 and 30 million metric tons to world annual grain import demand between 1971 and 1991; in several years it exceeded 40 million tons. The internal instability feared by the Soviet regime led them to import grain and export instability to world grain markets. The grain was not acutely needed for human food, but it was needed for expansion of

the livestock industry, to "put meat on the table."

Following the collapse of the USSR, the mix of major grain importing countries has changed dramatically in the 1990s. As recently as 1992/93 the former Soviet Union (FSU) imported 24.3 million metric tons of wheat and 11.2 million tons of coarse grains, for a total of 35.5 million tons.

For 1999/00 the forecasts for FSU imports are 5.6 million tons of wheat and just under one million tons of coarse grains, for a total of 6.5 million tons. This reflects a decline in seven years in FSU imports of wheat of 18.7 million tons, and a drop in coarse grain imports of 10.3 million tons, for a total decline in wheat and coarse grain imports of 29.0 million tons.

To give these figures a sense of scale, the seven-year decline in FSU imports from 1992/93 to 1999/00 is equivalent to 18.8 percent of total world wheat trade and 11.1 percent of total world trade in coarse grains, as forecast for 1998/99 (USDA, FAS, Grain: World Markets and Trade, FG 8-98, August 1999).

In quantity terms, over this seven-year period the decline in annual FSU wheat imports of 18.7 million tons was greater than average annual Canadian wheat exports, and the decline in coarse grain imports equaled average annual Argentine exports of coarse grains. No drop of these magnitudes has been recorded since the Second World War.

The historic admission in 1971 that the Soviet Union could not produce the meat it wanted from its own resources was ideologically devastating in the long run, but helped give it two more decades of life. It also gave the Common Agricultural Policy of the European Community an important outlet for its agricultural surpluses, especially feed quality wheat, and it supported, not solely but very prominently, the continuation for another two decades of agriculture policy in Canada and the United States, in a

relatively unchanged form. What the Soviet Union did, in a desperate attempt to avoid collapse in the early 1970s, served to underwrite contemporary agricultural policy in a substantial portion of the rest of the trading world. This has now come to an end.

One consequence of the collapse of the Soviet Union in 1991 has been a far-reaching readjustment in world grain trade. Consider the North African states that include Morocco, Algeria, Tunisia, Libya and Egypt. Add to this the states of the Middle East, including especially Syria, Saudi Arabia, Iraq, and Iran. The states of this contiguous area are peculiarly vulnerable to climatic shifts, are almost uniformly grain deficit, and exhibit one of the highest rates of population growth in the world. Their principal food staple is wheat, not rice. The result is that North Africa and the Middle East combined have consistently had a higher wheat import tonnage in the 1990s than the states of the former Soviet Union and China combined, and they are far higher than the FSU and China in the forecasts for 1999/00 wheat imports. The data are shown in Table 1.

Table 1: Comparison of Trends in Wheat Imports by China, the Former Soviet Union, North Africa and the Middle East

Country or Region	1979/80[a]	1989/90[b]	1994/95[c]	1999/00[d]
Million Metric Tons				
China	8.9	12.8	10.3	1.5
FSU	12.1	20.4	8.3	5.6
Combined	21.0	33.2	18.6	7.1
North Africa	10.1	14.2	15.9	16.2
Middle East	7.1	15.9	9.7	16.1
Combined	17.2	30.1	25.6	32.3

[a]USDA, FAS, Foreign Agricultural Circular, Grains, FG, 28-83, September 15, 1983.

[b]USDA, FAS, Grain: World Markets and Trade, FG 4-94, April 1994.

[c]USDA, FAS, Grain: World Markets and Trade, FG 1-99, January 1999.

[d]Forecast in: USDA, FAS, Grain: World Markets and Trade, FG 8-99, August 1999.

To summarize: The drastic reduction from 1992/93 to 1999/00 in grain imports by the states of the former Soviet Union removed 29 million tons from the demand side of world grain trade, a volume equivalent to the total wheat exports of Canada plus the total coarse (feed) grain exports of Argentina, if averaged over those years. Between 1992/93 and 1999/00 world trade in wheat and coarse grains declined from 205.2 million tons to a forecasted 195.7 million tons, a drop of 9.5 millions tons. The expansion of demand by other grain importing countries thus replaced only about two-thirds of lost demand from the FSU. This is the basic explanation of much of the economic distress now being felt by farmers in grain surplus producing countries..

But it is not the only explanation. The more than doubling of world trade in grain, from 101 million tons in 1971/72 to peaks of 208 million tons in 1989/90 and 207 million tons in 1991/92, fostered a belief in seemingly unlimited market expansion potentials.

This was fueled by forecasts of world population growth, and by extrapolations of demand for food as developing countries raised their levels of consumption. The result has been the emergence of monoculture or duoculture in the American grain belts. In the Corn Belt, this involves primarily corn and soybeans, in the Hard Winter Wheat Belt, wheat and sorghum, in the Hard Spring Wheat regions, a virtual monoculture. As noted above, there has been a drastic decline in livestock keeping on grain farms. Much of the animal population on grain-producing farms today could properly be classified as companion or “hobby-farm” animals.

The opportunity for full employment in farming has fallen with the decline in animal keeping. With no animals, there has been a sharply reduced opportunity for year-round or day-to-day self-employment on the farm in animal care. This changes the status of many grain producers to that of

part-time farmers, measured by the number of months in the year in which they are fully employed in farming.

In addition to an increased dependence on one or a few crops, a contributor to the distress of U.S. farmers has been the basic change in 1996 in U.S. government price support policy for agricultural commodities, primarily grains and cotton. In the past, price supports had depended, in various years, on programs involving planting quotas, "set aside" acres, and associated measures, in an attempt to control supply. These were abandoned in principle in 1996, to be phased out over 7 years, under a slogan of "Freedom to Farm." This reflected a belief that rewards in farming should be received through the market place, and not through government "deficiency payments" or other direct subventions based on historical records of production. In effect, farmers were to be encouraged to make their own decisions regarding what to grow or when to grow it. This policy shift unquestionably reflected an underlying belief in the favorable expansion potential of world markets, especially for grains.

Unfortunately for these policy goals, but not for consumers, the period since 1996 has involved successive years of favorable weather in much of the world, with record or near-record grain output, in the U.S. and in some key importing countries, especially China. The price of wheat at the farm gate in the U.S. Hard Winter Wheat Belt in September 1999 varied around $85 per ton, and corn on Corn Belt farms was widely available at $65 per ton. Adjusted for inflation, the purchasing power of these grains in 1999 was at or below the lowest levels reached in the depression years of the 1930's. The potential for an expanding world market for grains is real, but it is still in the future. The guidance provided by the market place since 1996 in the U.S. has been distinctly negative.

Another dimension of agriculture in the United States deserves emphasis. We have undergone the most severe pattern of off-farm migration in our country's history. Millions of people have moved out of agriculture in what ranks as one of the biggest internal migrations in any country. One consequence is that the beneficial ownership of assets in farming is increasingly held off the farm. Much of the ownership of farm land moved off the farm with the migrants. This is changing the nature of the farm problem in America, especially as it affects the distribution of agricultural income and wealth.

There are several dimensions of migration out of agriculture. One has involved multiple job-holding, with one job in farming and one in some non-farming activity. The census terminology used to describe this occupational migration is "off-farm work." Of the 1,911,859 farms enumerated by the U.S. Census of Agriculture in 1997, a total of 1,042, 158 reported some work off farm in the previous year, and 709,279 or just under 40 percent reported 200 days or more. Viewed in this light, many farms have become a part of the non-farm residential support base.

This trend is not entirely due to farmers seeking additional income to augment their low family farm income. A large but difficult-to-measure fraction of those reporting off-farm work have made a choice of life styles, to permit rural instead of urban living. But they can still be legitimately included in the farming population, and classified as "part-time farmers."

This melding of country and city is of course most characteristic of rural areas surrounding large industrial and commercial job markets. It is not surprising that, for most of the period since 1950, the U.S. state with the largest proportion of its agricultural land included in part-time farms is Michigan, the traditional home of the automobile industry.

What is surprising is that the era of electronic commerce has opened up non-farm employment

opportunities for farm residents in remote areas, far outside usual commuting belts around cities. The most striking examples are in the grain-crop regions of the upper Mid-West, and Great Plains. Mechanization has expanded the area that can be managed by one operator, and the move out of livestock keeping has reduced demands on the operator's time.

Equipped with the needed computer skills, the grain farmer can assume full time responsibilities for a non-farm job that can be fulfilled without leaving home. This possibility is being achieved in a small but increasing number of remote farm communities. The essential base is a high quality communications system, by telephone or otherwise. Where that exists, the initiative for this type of on-farm performance of non-farm work has in many cases been taken by the prospective employers, for an unusual reason: They can save on industrial and commercial building costs.

If supervisory and monitoring tasks are manageable, i.e., through independent contracting, the employer of on-farm workers linked electronically with the home office can eliminate the cost of an expensive office building. The "office in the farm home" becomes a realistic possibility. Alternatively, the "office in a small town" has attraction similar to those of off-shore banking havens in the Caribbean, and for the same reasons: Tax reduction or avoidance.

The unexpected consequence is that some of the more remote rural communities in one-crop regions see new potentials for diversification, through non-farm work on farm.

A phenomenon also associated with unprecedented internal migration out of agriculture has been the increase in what have been classified in the U.S. Censuses of Agriculture as part-owner farms. A customary classification of the tenure of U.S. farms has been tripartite, as operated by full owners, part-owners, or full tenants. For the U.S. as a whole, the class of fully tenant-operated farms (the

operator rents or leases all of the land farmed) has been relatively stable for 3 decades, at 11 to 13 percent of the total area of land in farms. The area operated by full owners (those who own all of the land they farm) has also been stable for three decades. It was 32.7 percent in 1978 and 33.9 percent in 1997.

The most significant change has involved farm operators who are part-owners, but are also part tenants. This today is the dominant tenure class in American agriculture. It is also the source of considerable confusion in interpreting trends in land tenure. From one perspective tenancy plays an important role in U.S. agriculture. For the U.S. as a whole, the proportion of agricultural land operated by tenants stood at 39.6 percent of all land in farms in 1978 and 40.6 percent in 1997. Full tenants in 1997 accounted for 11.6 percent, and rented land operated by part-owners for 29.0 percent. The distribution of owned and rented land in farms by tenure class is shown in Table 2, for 1978, 1987, and 1997.

Table 2: Distribution of Owned and Rented Land in Farms

United States, 1978, 1987, 1997[a]

Tenure Classification (Acres)	Acres of Land in Farms and Percent		
	1978	1987	1997
Owned Land in Farms			
Full Owners	331,920,878	317,787,149	316,044,548
%	32.7	33.0	33.9
Part Owners	281,452,255	244,363,607	237,660,722
%	27.7	25.3	25.5
Subtotal Owned	613,373,133	562,150,756	553,705,270
%	60.4	58.3	59.4
Rented Land in Farms			
Part Owners	279,686,464	275,450,916	270,012,622
%	27.6	28.6	29.0
Full Tenants	121,717,637	126,868,953	108,077,363
%	12.0	13.1	11.6
Subtotal Rented	401,404,101	402,319,869	378,089,985
%	39.6	41.7	40.6
Total Land in Farms	1,014,777,234	964,470,625	931,795,255

[a]U.S. Department of Commerce, Bureau of the Census, 1982 Census of Agriculture, Vol. 1, Part 51, Table 5, p. 173, 1987 Census of Agriculture, Vol. 1, Part 51, Table 48, p.49; and 1997 Census of Agriculture, Vol. 1, Part 51, Table 46, p 57. Data cover all farms with annual agricultural product sales of over $1,000.

From another perspective, the percentage of all land in farms owned by the operator has been relatively stable for the past half century. Full owners in 1997 accounted for 33.9 percent of land in farms, and owned land included in part-owner operation for 25.5 percent, making a total of 59.4 percent of all land in farms owned by the operators. For the country as a whole in 1997, for every two acres of rented land there were three acres of owned land in farms.

More relevant is the fact that land operated by full tenants, at 11.6 percent, is near its all-time low (of 11.5 percent in 1982). Read in another way, 88.4 percent of all land in farms is in the hands of operators who own some or all of the land they farm, i.e., have the mind-set of owner-operators. This is the highest percentage on record.

The emergence of farm operations combining some owned and some rented land (the "part owner" class) is a direct consequence of the heavy migration out of agriculture noted above. A representative family farm today consists of a family member who has taken over the operation of the parental farm and who shares its inherited ownership with siblings. Some of the land is owned outright, some is rented from siblings. With the passage of time, the farm operator may want to buy their shares, but in the meantime remains a renter. This demographic process accounts for much of the increase in the part-owner tenures class described above, and has facilitated the accompanying increase in size of farm operating units.

It also has played an often-decisive role in the market for farm land. A large part of the supply of land for possible purchase is dependent on the resolution of the process of land transfer through inheritance. We are now in a stage in this process of demographic-induced transition in which the part-owner farm plays a pivotal role in the land market.

A farm operator who already owns some farm land is in a strategically favorable position in bidding for any near-by land that is for sale. He can use his owned land to increase his collateral in arranging mortgage credit. He can spread his fixed costs of management and household maintenance over more acres, thus lowering total unit costs of production. And he is likely to be better informed about local soil, climate, and drainage conditions than a more distant buyer. Part-owner farm operators are vigorous participants in the market for farm land.

Tracing this influence through an analysis of individual sales is difficult, and expensive. Proxy data are available from land market studies in Minnesota, showing that three-fourths of all sales of farm land in recent years have been to buyers living within 10 miles (15 kilometers) of the land purchased. As the quality of land increases, this distance decreases. Over 80 percent of all acres sold in the best farming regions in the 1990's were to buyers living less than 10 miles away. The market is very local, and neighbors are the principal buyers.

These changes in land tenure and the mix of farm enterprises have altered fundamentally the relationship between the roles of equity and debt capital in American agriculture. In the past, the major debt exposure of farmers had been to credit secured by land. Credit for operating (seasonal or short-term) capital had always been important, but it was for most farms a lesser fraction of total capital requirements.

Concentration and specialization in livestock production are converting animal agriculture into quasi-industrial types of organization. This is most apparent in poultry and eggs and beef feeding, and more recently in hogs and dairying. These operations typically require little land, and the capacity of the operator to contribute equity through land ownership is sharply reduced.

In contrast, the demand for operating capital is increased. With over half of total cost of production in agriculture now accounted for by purchased inputs and services, there is a diminishing opportunity for farm operators to capture value-added in the form of economic rent for their land and rewards for labor and management.

This is transforming the managerial and financial structure of agriculture. From its earliest days as a nation, land-based credit has been the financial backbone of American agriculture. Recognition of this fact was the earliest guide for public policy supporting agriculture, leading to federal government support for the establishment of a system of Federal Land Banks, beginning in 1917. Originally drawing on government-supplied capital, these have now been converted into privately financed institutions, owned by their member-borrowers, with policy coordinated and supervised by the federal Farm Credit System.

Beginning in the depression years of the 1930's and accelerating after the end of war in 1945, what is now the Farm Credit System added farm operating credit (production credit) to its range of farm credit activities. At its peak in 1981-84, the system held over one-third of all farm business debt and over 43 percent of farm real estate debt. Commercial banks held only 7 percent of farm debt secured by real estate mortgages. (USDA, ERS, Agricultural Income and Finance, AIS-71, February 1999, and earlier reports).

Following the collapse in 1981-82 of a devastating inflation in farm land prices (land prices in Corn Belt states had increased 5-fold from 1971 to 1981), and driven by the demand for farm operating capital, the supply sources for farm credit have reversed. Commercial banks in 1998 held 41 percent of all farm business debt, and the Farm Credit System only 26 percent. The most dramatic

change has been in the proportion of real estate debt held by commercial banks, rising from 7 percent of the total in 1982 to over 30 percent in 1998.

This underscores the extent to which risk in farm real estate lending has shifted to the private commercial sector. Any weakening in the fortunes of farming will now have a much larger impact on the commercial credit structure than at any time in the past three decades. The exposure of the commercial banking system to farm real estate credit risk has sharply increased.

The expansion of urban-type land uses into rural areas has created a new problem in rural credit. The collapse of U.S. farm land prices after 1981 had many causes, but one prominent one was weak standards for appraisal and valuation that fed the land price boom in the 1970's. Following the collapse of farm land prices in 1981-82, renewed emphasis was placed on appraisal and valuation practices for farm land, using improved data on soil productivity, erosion susceptibility, water regime, and location with respect to agricultural markets. The focus was still on agricultural use of the land.

For a growing fraction of the area of agricultural land, and a much larger fraction of its value, the “highest and best use” of farm land, as measured in land values, is not in farming. This can be illustrated by the problem of valuing the farm home.

The vast migration out of agriculture and the decline in number of farms has left many rural communities with an over-supply of farm dwellings, and associated land and buildings. In many farming areas, the presence of a farm house or farm buildings adds nothing to the value of the land. They may detract, since it will be costly to demolish them and return the land to cultivation.

In contrast, in an ever-widening belt around cities, and even smaller rural towns, the dwelling and the dwelling site are the principal component of the farm land’s value. This reversal can extend

great distances from core cities, reaching 75 to 100 miles. In these areas of the "urban shadow", the value of land in agricultural use is often a minor factor in an appraisal for farm land credit. The sectors of housing finance and farm finance are blending.

Even in strictly agricultural uses, the problem of building valuation has acquired a new urgency. Poultry production, hog production, beef cattle feed lots, dairy production, and nursery and horticultural crops all now require specialized buildings and handling equipment. They are single-purpose structures, and have virtually no resale value except in their intended use. Paralleling the rise of monoculture in field crops has been this rise in single-purpose capital in animal production. Much of the value of rural real estate is now dependent on the market for a single product, or for single-purpose buildings. Risk in rural lending has increased.

Cost of land is still a major component of total costs of production in some types of farming. As has been noted, this is not true in poultry, beef-feeding, pigs, and some types of dairying. The decline in family farms has been especially concentrated in these types of farms.

Where land is still a major capital cost, the family farm retains an advantage. Families will apparently hold land at lower rates of return on capital than will corporate investors or non-family and non-farming owners. This tends to be true in farms producing grain crops (wheat, corn, soybeans, sorghum, barley), and to a lesser extent in cotton, sugar beets, tobacco, and hay and pasture lands.

Why is this so?

Capital invested in farm land is relatively immobile, and illiquid. The transaction costs in converting farm land capital into financial capital are high and the process is both cumbersome and time-consuming. The market for farm land is thin, and localized. In the major farming regions, the

turnover in ownership of land in farms rarely exceeds one to two percent of the total area, in any one year. Investing in farm land is a capital commitment for the long run, with the prospect of a slow payout, or an expensive exit.

It remains to be seen whether commercial non-farm capital will find this attractive. The evidence to date is that, in grain crop farming, many non-farm corporate investors do not want to own farmland. It commits too much capital, the rate of return is low and highly variable, and it is difficult to withdraw.

The expansion of non-farm capital in agriculture in the U.S. especially since the mid-1980's, has occurred during a period of general prosperity. Capital costs, measured by current interest rates, have been falling, and farm land prices have been rising, from the low points reached in most regions in 1986-87. The commercial banking system is more heavily committed to the fortunes of farming and to rural real estate than at any time since 1970. And the exposure of American agriculture to the vagaries of foreign markets has never been higher. The commitment of non-farm capital to agriculture has not been tested by a severe slow-down in the non-farm economy.

It seems safe to conclude that agriculture in the United States is still a sector in transition, and especially in its financial dimensions.